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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/546,824

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Kazunori Okada

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MCDERMOTT WILL & EMERY LLP  
600 13TH STREET, N.W.  
WASHINGTON, DC 20005-3096

EXAMINER

ROE, JESSEE RANDALL

ART UNIT

PAPER NUMBER

1793

MAIL DATE

DELIVERY MODE

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/546,824	<b>Applicant(s)</b> OKADA ET AL.	
	<b>Examiner</b> Jessee Roe	<b>Art Unit</b> 1793	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 1 April 2008.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-5 is/are pending in the application.
- 4a) Of the above claim(s) 5 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-4 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>24 August 2005, 28 February 2007 &amp; 22 April 2008</u> .    | 6) <input type="checkbox"/> Other: _____                          |



## **DETAILED ACTION**

### ***Status of the Claims***

Claims 1-4, drawn to a metal structure, are currently under examination. Because the Applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP §818.03(a)). Claim 5 is withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a method of fabricating a metal structure, there being no allowable generic or linking claim.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-4 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In regards to claim 1, it is unclear from the limitation "unlikely to become brittle" whether scope of the product or the process entails a brittle metal structure or a non-brittle structure. Furthermore, it is unclear how the relative brittleness of metal structure is defined.

Still regarding claim 1, the phrase "excellent hardness and creep resistance" in claim 1 is a relative phrase which renders the claim indefinite. The term "excellent" is not defined by the claim, the specification does not provide a standard for ascertaining

the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. Furthermore, it is unclear how the relative hardness and creep resistance are defined

***Claim Rejections - 35 USC § 102/103***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-3 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Roberts (US 4,021,271).

In regards to claims 1-2, Roberts ('271) discloses annealing an Al-Mg alloy at a temperature in the range of 200-538°C and holding the product at the annealing temperature for the minimum amount of time to prevent grain growth (growth of crystal grains) during the final anneal (abstract, col. 1, lines 45-53 and col. 3, lines 27-41). Alternatively, Roberts ('271) discloses that the grain size developed would depend on time and temperature and the grain size would impact the degree of superplasticity and other mechanical properties. Therefore, it would have been obvious to one of ordinary

skill in the art at the time the invention was made to modify the time and temperature, as disclosed by Roberts ('271) in order to achieve any desired grain structure (crystal grains) which would in turn impact the superplasticity and other mechanical properties of the Al-Mg alloy. MPEP 2144.05 II.

With respect to the recitation "excellent hardness and creep resistance" of claim 1, these properties would be expected because Roberts ('271) discloses the same composition (metal) as that of the instant invention. MPEP 2112.01 I.

In regards to claim 3, Roberts ('271) discloses that the size of the grains (crystals grains) would be an average of 15 microns or less, which would be a microstructure (col. 3, lines 20-42).

Claims 1-3 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Doyle (US 3,310,389).

In regards to claims 1-2, Doyle ('389) discloses annealing an aluminum-base alloy containing magnesium, silicon, manganese, and chromium at a controlled temperature below that at which grain (crystal grain) growth can take place (col. 1, lines 29-43 and col. 2, line 61 – col. 3, line 25). Doyle ('389) also discloses high creep resistance (col. 1, lines 44-56). Alternatively, Doyle ('389) discloses that the annealing step would be modified to produce the desired tensile properties (col. 2, line 61 – col. 3, line 25). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the annealing step, thereby modifying the grain size, to achieve the desired tensile properties. MPEP 2144.05 II.

In regards to claim 3, Doyle ('389) discloses that the average grain size would be 0.0168 mm (16.8 microns), which would be a microstructure (col. 3, lines 64-75).

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Doyle (US 3,310,389) as applied to claim 1 above, and further in view of Glass et al. (US 5,306,414).

In regards to claim 4, Doyle ('389) discloses aluminum alloys as shown above that would have applications such as aircraft use (col. 1, lines 10-28). However, Doyle ('389) does not specify that the aluminum alloy would be used for a contact probe.

Glass et al. ('414) discloses using aluminum alloys as electrical resistance sensors in difficult to monitor locations on aircraft (abstract and col. 2, lines 1-17).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have applied to the aluminum alloy, as disclosed by Doyle ('389), as sensors for difficult to monitor locations on aircraft, as disclosed by Glass et al. ('414), in order to monitor corrosion resistance, as disclosed by Glass et al. ('414) (abstract and col. 2, lines 1-26).

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jessee Roe whose telephone number is (571) 272-5938. The examiner can normally be reached on Monday-Friday 7:30 AM - 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dr. Roy V. King can be reached on (571) 272-1244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/John P. Sheehan/  
Primary Examiner, Art Unit 1793

JR